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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,800	06/27/2005	Ronaldus Maria Aarts	NL021457	2100

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EXAMINER	
PAUL, DISLER	
ART UNIT	PAPER NUMBER
2615	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/540,800	AARTS ET AL.	
	Examiner	Art Unit	
	Disler Paul	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-15 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-15 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 6/27/05;9/11/06.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1,7-9, 12-15 are rejected under 35 U.S.C. 102(b) as being anticipated by McHugh (US 6,230,047 B1).

Re claim 1, McHugh disclose of the audio reproduction apparatus comprising: input means for inputting an input audio signal (fig.1-2 (60); col.6 line 45-52); an output for outputting an output audio signal derived from the input audio signal (fig.1-2,4 (50);col.6 line 60-67); a cost input for inputting a mathematical cost derived from a measurement, which measurement is user-influenceable (fig.1-3 wt (20); col.2 line 23-27; col.1 line 1-50; col.4 line 49-54); and a conditioning unit, capable of delivering the output audio signal in dependence of the mathematical cost, characterized in that the conditioning unit comprises an audio processing means arranged to process the input audio signal to derive the output audio signal with a reproduction quality in dependence of the mathematical cost (col.2 line 57-67; col.5 line 35-47).

Re claim 12, McHugh disclose of the audio feedback system comprising: an audio source (fig.1-2 (60); col.6 line 45-52); a measurement device arranged to deliver a measurement which is user-influenceable (fig.1-3 wt (20); col.2 line 23-27; col.1 line 1-50; col.4 line 49-54); a mathematical cost calculation unit, arranged to derive a mathematical cost from the measurement; a sound production device; and a conditioning unit arranged to receive an input audio signal from the audio source, to receive the mathematical cost, and to deliver to the sound production device an output audio signal derived from the input audio signal, in dependence of the mathematical cost, characterized in that the conditioning unit comprises an audio processing means arranged to process the input audio signal to derive the output audio signal with a reproduction quality in dependence of the mathematical cost col.2 line 57-67; col.5 line 35-47).

Re claim 7, the audio reproduction apparatus as claimed in claim 1, comprising a first quality calculation unit for determining the reproduction quality for use in the subsequent derivation of the output audio signal by the audio processing means (fig.2-3 wt (56); col.6 line 45-52).

Re claim 8, the audio reproduction apparatus as claimed in claim 1, comprising quality measuring means for measuring an output quality measure of the output audio signal, and comprising parameter value calculation means for calculating a parameter value, for use in the subsequent derivation of the output audio signal by the audio processing means (fig.1-4 wt (20,56,46); col.5 line 35-47; col.8 line 4-5/ the music will increase/gain adjusted according to the heartbeat).

RE claim 9, the audio reproduction apparatus as claimed in claim 1, wherein a mathematical cost calculation unit is comprised which is arranged to derive the mathematical cost from the measurement receivable from a measurement device (fig.1-4(20); col.4 line 42-54).

Re claim 13, McHugh disclose of the method of deriving an output audio signal from an input audio signal in dependence of a mathematical cost derived from a measurement which is user-influenceable, characterized in that the output signal is derived with a specified reproduction quality dependent on the mathematical cost (fig.1-3 wt (20); col.2 line 23-27; col.1 line 1-50; col.4 line 49-54).

Re claim 14, has been analyzed and rejected with respect to claim 13.

Re claim 15, has been analyzed and rejected with respect to claim 14.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over McHugh (US 6,230,047 B1) and further in view of Tucker et al. (US 5,742,689).

Re claim 2, the audio reproduction apparatus as claimed in claim 1, However, McHugh fail to disclose of the wherein the reproduction quality comprises a three-dimensional position of a virtual sound source, the audio processing means being able to simulate the virtual sound source by means of the output audio signal. However, Tucker et al. disclose of a system with using a headphone wherein the reproduction quality comprises a three-dimensional position of a virtual sound source, the audio processing means being able to simulate the virtual sound source by means of the output audio signal

(fig.2-4,7,10; col.3 line 30-55) for the purpose of enabling the user to sense multiple phantom loudspeaker when listening over a headphone. thus, taking the combined teaching of McHugh and Tucker et al. as a whole, it would have been obvious for one of the ordinary skill in the art at the time of the invention to have modify McHugh by incorporating the reproduction quality comprises a three-dimensional position of a virtual sound source, the audio processing means being able to simulate the virtual sound source by means of the output audio signal for the purpose of enabling the user to sense multiple phantom loudspeaker when listening over a headphone.

Re claim 3, the audio reproduction apparatus as claimed in claim 2, wherein the audio processing means comprises a filter arranged to simulate the position of the virtual sound source by deriving the output audio signal by filtering the input audio signal with a user dependent head related transfer function (fig.6; col.6 line 50-65).

Re claim 4, the audio reproduction apparatus as claimed in claim 2, wherein the audio processing means comprises an audio processing unit arranged to simulate the position of the virtual sound source by changing a property of the output audio signal selected from signal amplitude and added reverberation (col.5 line 24-50; col.6 line 23-37).

5. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over McHugh (US 6,230,047 B1) and further in view of Kim (US 6,817,440 B1).

Re claim 5, the audio reproduction apparatus as claimed in claim 1 with the adjustment made dependent on the mathematical cost, However, McHugh fail to disclose of the wherein the audio processing means is arranged to derive a second output audio signal, together with the output audio signal constituting a stereo audio signal, the audio processing means being arranged to derive a stereo audio signal from the input audio signal with a specified stereo quality. However, Kim disclose of a headphone device wherein the audio processing means is arranged to derive a second output audio signal, together with the output audio signal constituting a stereo audio signal, the audio processing means being arranged to derive a stereo audio signal from the input audio signal with a specified stereo quality (col.2 line 17-22; 34-40/stereo output with distinct for each ear) for the purpose of providing improved virtual sound simulation. Thus, taking the combined teaching of McHugh and Kim as a whole, it would have been obvious for one of the ordinary skill in the art at the time of the invention to have modify McHugh by incorporating the headphone device wherein the audio processing means is arranged to derive a second output audio signal, together with the output audio signal constituting a stereo audio signal, the audio processing means being arranged to derive a

stereo audio signal from the input audio signal with a specified stereo quality for the purpose of providing improved virtual sound simulation.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over McHugh (US 6,230,047 B1) and further in view of Surve et al. (US 6,520,905 B1).

Re claim 11, the audio reproduction apparatus as claimed in claim 9 wherein the mathematical cost calculation unit is arranged to be derived from a sensor measurement (col.2 line 24-27; col.4 line 45-52), Howver, Mc Hugh fail to disclose of the measurement device being a biometric measurement. However, Surve et al. disclose of a system wherein the measurement device being a biometric measurement (col.6 line 50-67) for the purpose of monitoring the monitoring the physiological state of an individual in contributing to the quality of life of that individual. Thus, taking the combined teaching of McHugh and Surve et al. as a whole, it would have been obvious for one of the ordinary skill in the art at the time of the invention to have modify Mc Hugh by incorporating the system wherein the measurement device being a biometric measurement for the purpose of monitoring the monitoring the physiological state of an individual in contributing to the quality of life of that individual.

7. Claims 6,10 are rejected under 35 U.S.C. 103(a) as being unpatentable over McHugh (US 6,230,047 B1).

Re claim 6, the audio reproduction apparatus as claimed in claim 1 with reproducing/adjusting the sound quality dependent on user's pulse (fig.2-4 wt (20,32,50), However, McHugh fail to disclose of the wherein the reproduction quality comprises a specification of a distribution of frequencies of the output audio signal, However, official Notice is taken the concept of reproducing sound comprising a specification of distribution of frequency output is commonly known in the art, thus it would have been obvious for one of the ordinary skill in the art at the time of the invention to have modify McHugh by incorporating the reproduction quality comprises a specification of a distribution of frequencies of the output audio signal for the purpose of creating virtual sound output.

Re claim 10, the audio reproduction apparatus as claimed in claim 9 wherein the Mathematical cost calculation is arrange to derive the mathematical cost between the measurement and selected value (fig.2-4 wt (20,32)) , However, McHugh fail to disclose of the derive the mathematical cost based on a difference between the measurement and a

chosen value. However, official notice is taken the limitation of deriving the mathematical cost based on a difference between the measurement and a chosen value is simply the inventor's preference, thus it would have been obvious for one of the ordinary skill in the art at the time of the invention to have modify McHugh by incorporating the derive the mathematical cost based on a difference between the measurement and a chosen value for the purpose of producing sound dependent on user's input.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Disler Paul whose telephone number is 571-270-1187. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DP

XU MEI
PRIMARY EXAMINER